TABLE 7.—*Monthly means showing the annual variation in the ultra-violet (<400 mμ) intensities in the total (sun and sky) and sky radiation as received on a horizontal surface—1931–40*

[Gr. cal./sq. cm./min.]

Month	10 a.m.				12 m.				2 p.m.			
	Sun and sky	Sky	Sun	Sun/Sky sky=100	Sun and sky	Sky	Sun	Sun/Sky sky=100	Sun and sky	Sky	Sun	Sun/Sky sky=100
January	.0837	.0393	.0444	1.13	.0891	.0346	.0545	1.58	.0930	.0374	.0556	1.50
February	.0750	.0337	.0413	1.23	.0974	.0337	.0637	1.90	.0947	.0336	.0611	1.82
March	.1210	.0355	.0855	2.41	.1097	.0414	.0683	1.65	.0925	.0435	.0490	1.13
April	.1435	.0426	.1009	2.37	.1255	.0423	.0832	1.96	.1243	.0474	.0769	1.62
May	.1180	.0410	.0770	1.90	.1089	.0366	.0723	1.98	.1203	.0456	.0747	1.63
June	.1030	.0282	.0748	2.65	.1132	.0400	.0732	1.83	.0833	.0348	.0485	1.40
July *												
August	.0776	.0408	.0368	0.90	.1156	.0603	.0553	0.91	.0960	.0465	.0495	1.06
September	.0839	.0361	.0478	1.33	.0954	.0378	.0576	1.53	.0837	.0429	.0408	0.95
October	.0918	.0355	.0563	1.59	.0942	.0507	.0435	0.86	.0959	.0386	.0573	1.49
November	.0717	.0312	.0405	1.30	.0863	.0419	.0444	1.06	.0755	.0395	.0360	0.92
December	.0516	.0203	.0313	1.54	.0793	.0348	.0445	1.28	.0642	.0269	.0373	1.38
Mean	.0928	.0349	.0579	1.66	.1014	.0413	.0601	1.46	.0930	.0397	.0533	1.35

* Too few values to average.

TABLE 8.—*Annual variation in short ultra-violet (<313 mμ) intensities of solar radiation at normal incidence—Monthly means: 1931–40*

[Microgr. cal./sq. cm./min.]

	January	February	March	April	May	June	July	August	September	October	November	December	Mean
10 a. m.	322	473	587	559	355	649	503	485	477	534	286	80	443
12 m.	507	508	621	561	704	726	695	521	511	593	520	588	588
2 p. m.	146	299	469	556	481	391	591	498	559	364	225	67	389
Mean	325	427	559	528	513	589	596	501	515	497	344	245	470

TABLE 9.—*Monthly means showing the annual variation in short ultraviolet (<313μ) intensities in the total (sun and sky) and sky radiation received on a horizontal surface—1931–40*

[Microgr. cal./sq./min.]

Month	10 A. M.				12 M.				2 P. M.			
	Sun and Sky	Sky	Sun	Sun/Sky sky=100	Sun and Sky	Sky	Sun	Sun/Sky sky=100	Sun and Sky	Sky	Sun	Sun/Sky sky=100
January	596	190	406	2.1	1,149	489	660	1.4	642	324	316	0.97
February	825	270	555	1.9	1,078	236	842	3.6	869	262	607	2.3
March	1,266				1,317	282	1,035	3.7	977	350	627	1.8
April	1,114	175	939	5.4	1,272	263	1,009	3.8	1,370	331	1,039	3.1
May	2,628	271	2,357	8.7	2,330	225	2,105	9.4	1,499	252	1,247	4.9
June	1,588	203	1,385	6.8	1,904	515	1,389	2.7	1,502	312	1,190	3.8
July	1,750	241	1,509	6.3		636			611			
August	1,830	208	1,622	7.8	1,867	268	1,599	6.0	317			
September	1,243	250	993	4.0	1,690	475	1,215	2.6	1,204	376	828	2.2
October	631	379	252	0.7	1,051	213	838	3.9	887	291	596	2.0
November	563	303	260	0.9	913	159	764	4.8	785	391	394	1.0
December	330	109	221	2.0	1,089	133	959	7.2	426	135	291	2.2
Mean	1,197	283	914	3.2	1,424	325	1,099	3.4	1,016	329	687	2.1

NOTES AND REVIEWS

H. U. SVERDRUP. *Oceanography for Meteorologists.* New York (Prentice-Hall), 1942. 246 pp., illus.

The interactions between the atmosphere and the oceans exert important influences on many meteorological phenomena; during recent years they have been involved to an increasing extent in current meteorological research, and it has become more and more necessary for both the theoretical and the practical meteorologist to be familiar with many topics from physical oceanography. This book, written by an authority on both meteorology and oceanography, has been prepared expressly to meet the need for a source of information for the purposes of the meteorologist.

The introductory chapters are devoted to radiation and absorption by the atmosphere and the oceans, and the heat balance of the earth as a whole; the physical properties of sea water; and the nature and technique of oceanographic observations, including descriptions of the instruments that are used.

The next few chapters discuss the general principles of physical oceanography—the processes of the heating and cooling of the oceans; the distribution of salinity, temperature, and density over the surface of the oceans and in the subsurface waters; the physical theories of ocean currents, wind currents, and wind waves; and the thermodynamics of ocean currents.

The final chapters describe the water masses and currents of the various oceans of the world; and the existing oceanic influences on the weather and climate of different regions of the globe.

A rare halo phenomenon.—On April 22, 1942, from 10:30 to 11:15 E. S. T. the upper half of an ordinary halo of 22° was observed at State College, Pa. The colors were very brilliant. At 15:10 E. S. T. the small ring again appeared and at 15:15 the two parhelia and the upper tangent arc of the small ring were seen. At 15:30 a parhelic circle was added to the display, complete except for the interior of the small ring. The width of the parhelic circle was measured at 1.5°; the parhelia were at an angular distance of 26.3° from the center of the sun. The inner red rim of the common ring had a radius of 21.9°. The sun's altitude corresponding to these measurements was 37.7°. At 15:55 E. S. T. the parhelic circle had disappeared leaving only the small ring, its upper tangent arc and the two parhelia. At 17:00 only the parhelia were left, which faded away by 17:20.

As evidence of the rarity of the full parhelic circle, it may be mentioned that during the period from January 1934 to date, the writer has systematically observed halo phenomena and accumulated in this time records for 954 days with halo phenomena, corresponding to an average of 115 days a year. Among all these observations the display seen on April 22 is the first complete parhelic circle seen.

—*H. Neuberger, State College, Pa.*